need of the child and supply it as near the optimum, 1¼ ounces of proteid containing fluid per pound per day as possible. If we do not hold the views of the extremest of the Germans, we will recognize casein overfeeding and utilize the protecting colloidal action of dextrine, and if this be insufficient of whey as well, remembering that the albumin value of whey is less than 1-3 that of milk.

Second, we will recognize that fat indigestion is the commonest digestive disturbance that infants are prone to, that it may express itself as gastric disturbance, distress, vomiting, hypochlorhydria with gastric spasm, or as intestinal disturbance with extreme constipation, or under some circumstances a diarrhea with the scrambled egg stool, under other conditions as metabolic disturbance with ammoniacal urine, head sweating, and loss of weight.

Third, we will remember that gastric digestion is a minor factor in milk digestion, that gastric disturbances are of importance only when there is very much interference with motility and acid secretion and when the stomach empties itself slowly or incompletely. Normally the emptying time is invariably proportionate to the concentration of the food, especially of the fat concentration. Thus weak foods can be fed at shorter intervals than more concentrated food. Whey may be fed every hour, skimmed milk every hour and a half, one-third milk every 2 to 2½ hours, etc.

Fourth, that while digestibility of mixtures may be modified by modifying its proportion; that the metabolic disturbances depend on the amounts of the different food principles ingested in 24 hours; and that overfeeding is the common error, underfeeding is comparatively rare.

Fifth, that the efficiency of digestion demands that seven feedings in 24 hours is the maximum for a bottle baby, though usually to be advised in the early months, and that in the middle and last months of the first year, six and five feedings in the 24 hours are to be advised, provided the energy needs 45, 40, 35, calories per pound per day, and the minimum albumin needs are met.

Sixth, that while dairy milk is always to be strenuously insisted on provided that a clean supply, preferably a certified supply, is at hand, it must not be forgotten that clean condensed milk is a better food than dirty dairy milk and that from it in its unsweetened form a thoroughly satisfactory substitute food can be evolved, provided care is taken not to violate the physiological principles laid down.

Seventh, that certain children show individual intolerance for one or another of the food elements. Some tolerate fat badly; such can have their needs met by the use of sugars or dextrines. Some tolerate sugars badly, and these, too, usually tolerate dextrines. Some show intolerance for one type of sugar; this child vomiting on reasonable amounts of lactose and tolerating maltose in excess or vice versa, also that some few are intolerant to casein and must be fed whey proteids or vegetable proteids.

Eighth, that by a few simple stool examinations we can elucidate and often clear up a difficult feeding case, puzzling in the unaided light of the clinical picture.

Ninth, that top one-third and top one-half milk mixtures provide a food poorly balanced between energy and albumin content. Simple dilutions, at times slightly enriched by fat with added sugar and added dextrines provide a much better means of substitute feeding. The success of most of the popular infant foods depends on the fact that they are rich in colloidal dextrines and that they use simple dilutions.

Tenth, that for practical purposes thirty-two ounces of milk is the greatest daily milk ration any child at any age should receive. That eight ounces is the maximum feeding, and that for the purposes of enrichment a simple plan is, to remove from the quart bottle the first 28, 26, 24 or 20 ounces. Very few children will tolerate sixteen-ounce top milk in a dilution sufficiently concentrated to supply their proteid needs.

Eleventh, that we are prone to keep children exclusively on milk for too long a period. At about the tenth month milk feeding should be augmented by a daily meal of cereal and fruit, and if the child has shown any degree of intolerance to milk fat, the cereal meal may be begun earlier and may be augmented by a second meal of vegetable bouillon and dextrine gruel.

Twelfth, that a clean milk supply is of such inestimable advantage that it is the duty of every physician to strive in every way to educate patients to an appreciation of the advantages of certified milk. (Concluded.)

UNUSUAL CASES OF SYPHILITIC OSTEO-PERIOSTITIS.*

By RENÉ BINE, M. D., San Francisco.

CASE I.

Vertebral syphilis is so unusual a condition as to render the presentation of this case of more than passing interest. In its advanced stages, because of the similarity of signs, it is often difficult to differentiate such a lesion from infectious, traumatic or tuberculous processes, and in the pre-Roentgen and ante-Wassermann days, I feel certain that numerous cases were overlooked.

Ziesche, an assistant of Minkowski, in Breslau, has recently reviewed the subject of syphilitic vertebral inflammation, collecting but 88 cases including one of his own. Of these, 61 cases involved the cervical spine. Of this number 22 died, 6 as a result of cord compression and respiratory paralysis, and 14 with symptoms of a progressive marasmus. In 39 cases, recovery is said to have ensued, but statements as to the degree of function regained are omitted in practically all.

The great mobility, combined with the great amount of work it performs, possibly explains the comparative frequency with which the cervical spine is affected.

It is not my purpose to discuss this subject at any length. Ziesche's paper, which appeared less than six months ago (Mitteilungen aus den Grenzge-

* Demonstration: S. F. County Medical Society, Sept. 5, 1911.

bie ten der Medizin und Chirurgie, Bd. 22 S. 357) is very complete and to it I beg to refer those interested.

Mr. M. G., age 40, clerk, was referred to me in October, 1910, with a history very briefly as follows:

Family History: Negative, except perhaps that he was the youngest of 13 children.

Past Illness: Chancre and skin eruption 9 years ago, mercury and iodides used periodically for 2½ years. Gonorrhea several times, with 6 years ago testicle involvement. Malaria 12 years ago.

Present Illness: For the last 6 months patient has been suffering with intense pains in both knees, right arm, right shoulder, hands, and in the lumbar region of the spine. Pains are worse at night and prevent sleep. Has tried various drugs and has visited several springs, but without relief. Weight has decreased from 154 to 128 pounds, appetite being poor. Patient also mentions the fact that his memory is getting poor, and that his "eyes blur easily."

Examination at this time showed a poorly nourished, rather young looking individual. (His appearance had led one of the medical men consulted to suspect tuberculosis.) Anterior and posterior cervical glands were moderately enlarged; right epitrochlear, axillary and inguinal glands were large and very hard. Chest and abdomen practically negative. Pupils small, irregular, reactions to light sluggish, especially the right one. Discs pale around the edges. Slight bilateral ptosis. (Congenital ?) All tendon reflexes present and lively; knee jerks very much exaggerated. Except for inconstant errors in recognition of heat and cold in left axillary and left scapular region, no sensory changes noted. Both knees decidedly swollen and bony parts apparently thicker; only the left knee tender on pressure. X-Rays of knee joints of no aid in diagnosis. Right arm not tender; the bone apparently thicker. Slight lateral curve to lumbar spine. Wassermann test double plus.

Diagnosis: Syphilitic osteoperiostitis, possibly tabes.

The patient disappeared after 3 weeks and was not seen until July 24, 1911. He now complained that for a period of two months his neck had been getting gradually stiffer and that for the last week he was unable to move it at all. Has steady, severe pain with nocturnal exacerbations. Neck and head excruciatingly tender. "Weight of hat is too much, can't even touch head with a comb." Absolutely unable to sleep, and reclining position so painful he shuns the bed. "If tries to move the head, feels and hears something crack." Has become painfully thin. Has some difficulty in swallowing.

At this date the patient presented a pitiful appearance. He held his head absolutely fixed, tilted upward and to the right, and protruding slightly forward on the neck.

There was a definite projection of the 6th and 7th cervical spines, above which there was an acute depression as shown in Fig. II. No muscle spasm. The tenderness at the level of the 6th and 7th cervical vertebrae was slight compared with that

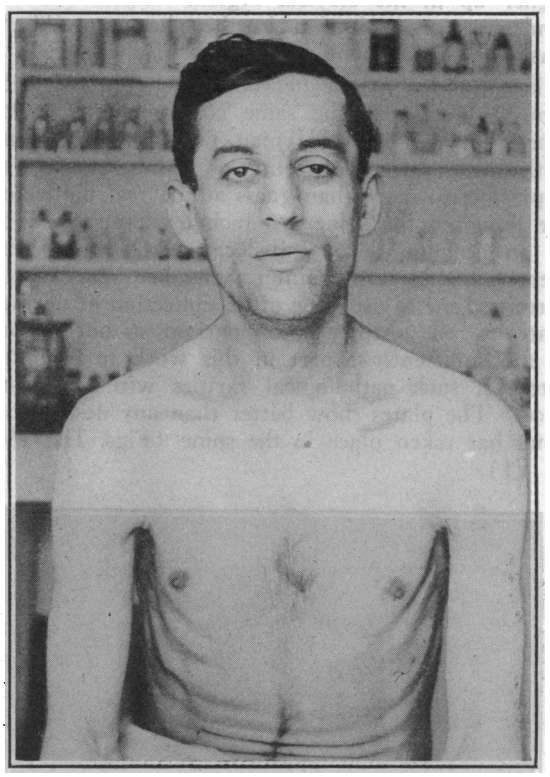

Fig. I.

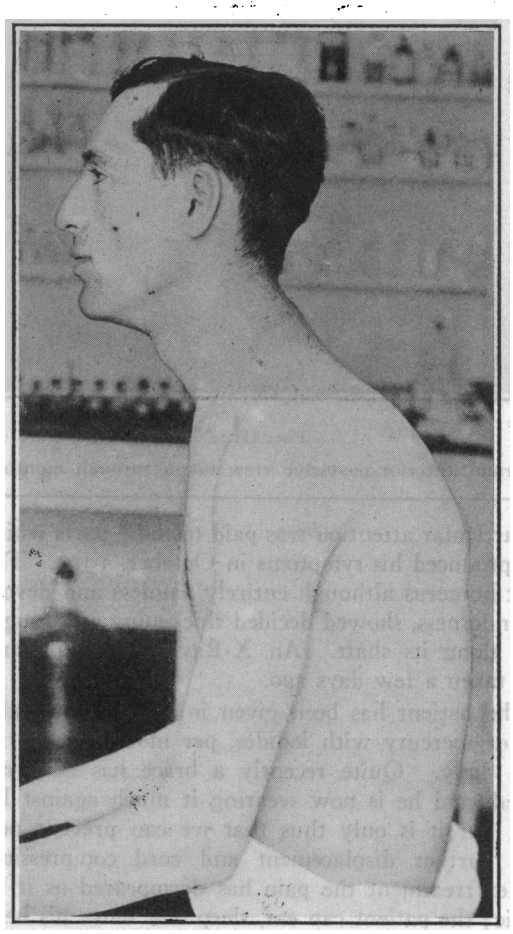

Fig. II.

higher up in the cervical region. There was no tenderness or projection in the pharynx. There was some impairment of mobility of the jaw.

Examination of the nervous system at this date showed practically the same condition as in October, 1910. Dr. Sol Hyman, who saw the patient with me at this time, feeling as I did, that it was impossible to more than guess at the real nature of the lesion in the spine, producing what seemed to be an occipito-atlantoid dislocation, X-Ray plates were taken by Dr. Painter, who has very kindly permitted me to use some of his collection of normal plates for the purpose of comparison, as but few of us are sufficiently expert in this work to properly interpret such pathological rarities without assistance. The plates show better than any description what has taken place in the spine (Figs. III, IV, V, VI).

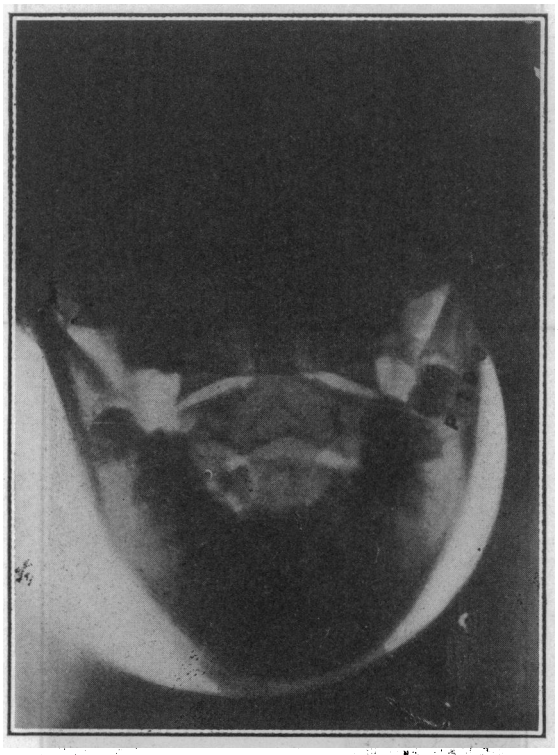

Fig. III.

Normal anterior-posterior view taken through mouth.

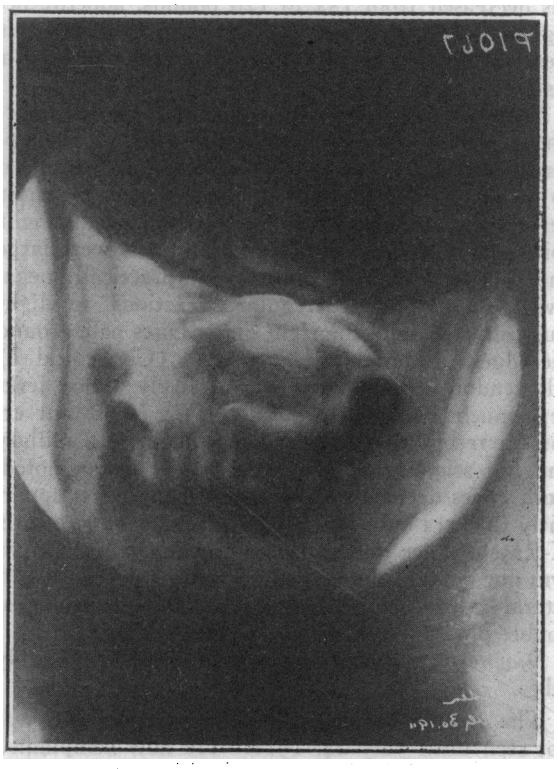

Fig. IV.

Anterior-posterior view showing absence of odontoid process and apparent destruction of intervertebral substance, with approximation of the two vertebrae and tilting of head to right.

Particular attention was paid to those parts which had produced his symptoms in October, 1910. The right humerus although entirely painless and devoid of tenderness, showed decided thickening and roughness along its shaft. An X-Ray plate was therefore taken a few days ago.

The patient has been given injections of cacodylate of mercury with iodides, per mouth, up to 20 gms. daily. Quite recently a brace has been obtained, and he is now wearing it much against his will, but it is only thus that we can prevent possible further displacement and cord compression. Under treatment the pain has disappeared as if by magic; the patient can eat, sleep and move his head quite freely. He has been gaining at the rate of about 4 lbs. a week, his present weight being 143 lbs.

I shall endeavor at a future date to report the course of this case.

CASE II.

This case has been more or less under observation for 2½ years and presents so many interesting features as to warrant a rather detailed recital. The following are the salient points in the notes taken April 17th, 18th and 19th, 1909:

Family History: Negative.

Habits: Good.

Past History: Pertussis age 2½. Ruptured as result. Wore truss 10 years; cured. Always weak chested as child; in 1902 a left apical lesion was discovered and bacilli said to have been demonstrated in the sputum. In 1905 was 3 weeks in bed on account of bronchitis. In 1906 had rheumatism in right leg, elbow, arm and hand; some swelling occurred but patient does not know if fever was present.

Present Complaint: Has felt poorly for some months; has lost a great deal of weight (40 lbs.?); has fever and sweats at night. During the last few days, severe pain in the middle of the right arm, unrelieved by external applications. Patient noticed a lump in the arm a few days ago.

Examination: Chest shows signs of old apical involvement. Otherwise negative. Abdomen negative. Anterior and posterior cervical and right epitrochlear glands show slight enlargement. Right arm is very tender about middle third of the anterior surface of humerus, and a distinct swelling is felt

Fig. V.
Normal lateral view.

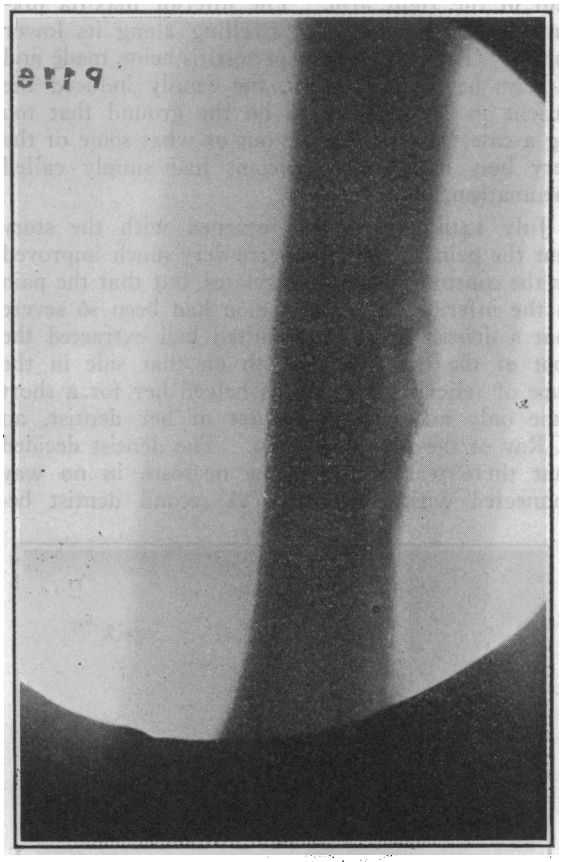

Fig. VII.
Right humerus.

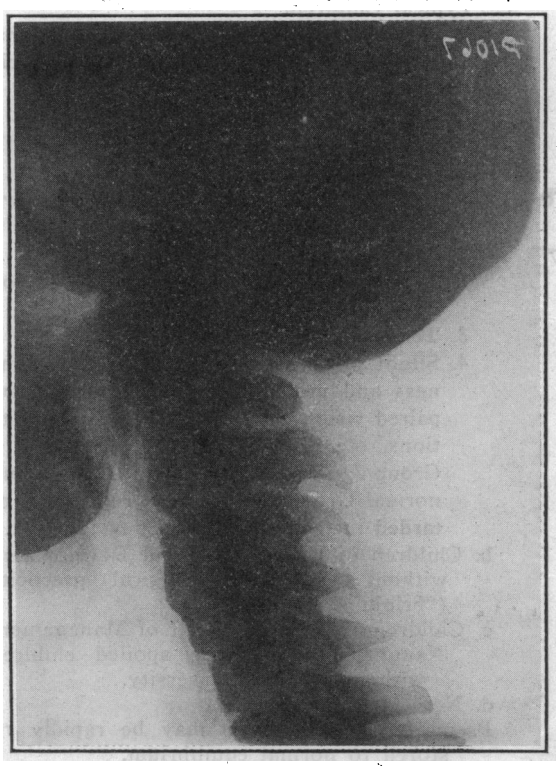

Fig. VI.
Lateral view showing tilting forward of first cervical and approximation of first and second spines.

here. The inner condyle is also quite tender to the touch. Blood shows moderate anemia.

The evening temperature fluctuated between 99° and 100°. The patient objected to having X-Ray plates taken of the arm, being greatly relieved by large doses of salicylates.

On May 12, 1909, patient returned with the complaint of pain and swelling of the lower half of the right side of the face, and of a recurrence of

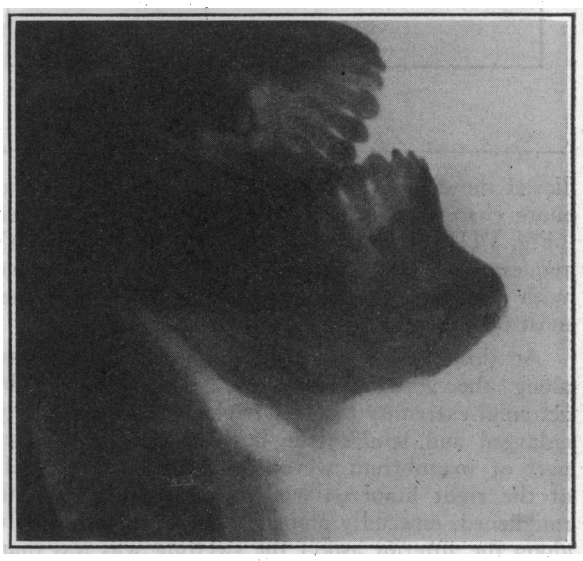

Fig. VIII.

pain in the right arm. The inferior maxilla presented a definite nodular swelling along its lower border. The diagnosis of periostitis being made and X-Rays being insisted on, the family induced the patient to cease her visits on the ground that too big a case was being made out of what some of the very best European physicians had simply called rheumatism.

July 14th the patient returned with the story that the pains in the arm were very much improved by the continued use of salicylates, but that the pain in the inferior maxillary region had been so severe that a dentist she had consulted had extracted the root of the first molar tooth on that side in the hope of relieving her. This helped her for a short time only and at the request of her dentist, an X-Ray of the jaw was taken. The dentist decided that there was definite bone necrosis, in no way connected with the teeth. A second dentist believed the contrary. The X-Ray plate showed far more changes than palpation of the jaw indicated (Fig. VIII). A third dentist, who, at the patient's request, examined her with me on July 19th, agreed with me that the condition was a systemic one, most probably luetic.

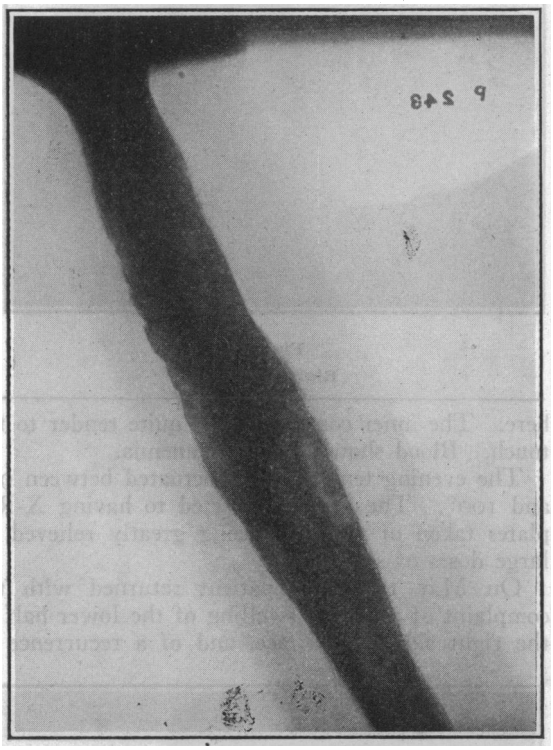

Fig. IX.
Right humerus.

At this time there was considerable tenderness along the vertebral border of the scapula; the acromial extremity of the left clavicle was definitely enlarged and tender; the left humerus and lower part of manubrium were also tender. The shaft of the right humerus was decidedly enlarged and roughened, especially along the inner surface, while along the anterior aspect the swelling was less than it had been in April.

July 27th, X-Ray of arm; the plate shows the condition far better than words (Fig. IX).

July 24, 1909, the patient had an epileptiform seizure, since which time there have been three more, the last one on Oct. 11, 1910. The patient admits having had similar seizures beginning in 1899, after "drinking out of a glass used by an epileptic girl." The patient has no aura preceding the attacks, but bites her tongue and occasionally has incontinence of urine during the seizure. Having never seen her in one, it is hard to say just what they are like. The patient is of a very hysterical type, and at least two attacks followed emotional excitement.

The eyes showed slight refractive errors,—no changes in fundi.

Sept. 8, 1909, Wassermann triple plus.

Since this time the patient has shown considerable improvement. The arm still shows thickening, but the jaw has assumed normal proportions. The patient has not followed treatment as she should, refusing all forms of injection treatment, including, more recently, salvarsan; she contents herself with inunctions and iodides. Last March the Wassermann was still positive.

TENTATIVE CLASSIFICATION OF EXCEPTIONAL CHILDREN.

By MAXIMILIAN P. E. GROSZMANN, Pd. D.,
Plainfield, N. J., May, 1909, Educational Director of the National Association for the Study and Education of Exceptional Children.

A. Normal Children.
(Those who are in accord with the norm, or standard, of human nature.)
1. Typical Children.
(Those who conform to the average human type, representing the present stage of civilization.)
2. Pseudo-atypical Children.
(Those who only seemingly deviate from the average human type.)
a. Children Whose Progress in School was hindered by:
1. Change of schools;
2. Slower rate of development, without atypical retardation;
3. Temporary illness;
4. Slight physical difficulties, such as lameness and minor deformities, slightly impaired vision and hearing, adenoid vegetations, etc. This last class is similar to Group 2, of the Pathological Classes, Subnormal Group; only that it represents **retarded** instead of **arrested** development.
b. Children of Unusually Rapid Development. without genuine (pathological) precocity ("bright" children).
c. Children Who are Difficult of Management. Naughty, troublesome, spoiled children, without genuine perversity.
d. Neglected Children.
Pseudo-atypical children may be rapidly restored to normal equilibrium.
3. Atypical Children Proper.
(Those who deviate from the average human type.)